

METHOD OF PROTECTING THE POLE PIECE OF A MAGNETIC HEAD DURING THE ION MILL PATTERNING OF THE YOKE

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ABSTRACT OF THE DISCLOSURE

A method of making a magnetic head which protects the front P2 pole tip during the ion mill patterning of the yoke is described. A front connecting pedestal is electroplated over the front P2 pole tip slightly behind the ABS, and a back gap connecting pedestal is electroplated over the back gap P2 pedestal. Insulator materials are formed over the front P2 pole tip, over the front connecting pedestal, and in between the front and the back gap connecting pedestals. Next, a chemical-mechanical polishing (CMP) is performed over the top of the structure to form a substantially planar top surface. A full-film of yoke layer materials is then sputter deposited over this top surface, followed by the formation of a photoresist mask slightly behind the ABS. When the yoke layer materials are subsequently ion milled to form the yoke, the front P2 pole tip is protected by the surrounding insulator. The front and back gap connecting pedestals form an intervening magnetic layer which connects the front P2 pole tip and back gap P2 pedestal to the yoke. The yoke is preferably a highly resistive magnetic material or a laminated structure of alternating magnetic and dielectric layers to reduce the effect of eddy currents.